4. Lifting a 1-Ton Weight

To lift a 1-ton (1000 kg) weight, we calculate the required pressure using the formula:

$P = F / A$

Where:

$F = 1000\ kg \times 9.81\ m/s^2 = 9810\ N$

A = Area of the piston

$P = 9810\ N / 0.01\ m^2 = 981\ kPa$

5. Types of Hydraulic Lifters

There are several types of hydraulic lifters suitable for medium loads:

- Scissor lifts: Use a crisscrossing metal support structure.
- Bottle jacks: Compact and portable, ideal for automotive use.
- Vertical cylinder lifts: Use a single piston to lift loads vertically.

6. Summary

Hydraulic lifters are essential tools in many industries, offering a reliable method for lifting heavy loads using fluid pressure. By applying Pascal's Law, these systems can efficiently convert small input forces into large lifting forces. Proper design and component selection are crucial for safe and effective operation.

7. References

- Hydraulic Lifts Powering Industries Through Fluid Mechanics
- 1 Ton Hydraulic Scissor Lift – DFLIFT
- Hydraulic Lift: What is it, How it Works, Types, Application